

THE ROLE OF THE HAWAIIAN TWO-LINED 'OHI'A BORER, PLAGITHMYSUS
BILINEATUS SHARP, IN THE DECLINE OF 'OHI'A-LEHUA FORESTS
ON THE ISLAND OF HAWAI'I*

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Plagithmysus bilineatus Sharp (Coleoptera: Cerambycidae), the Hawaiian two-lined 'ohi'a borer, is an integral part of the 'ohi'a forest decline. This insect has been closely associated with the onset of decline symptoms (crown chlorosis and crown loss) in 'ohi'a trees at eight widely differing sites on the island of Hawai'i. Experimental implantation of P. bilineatus larvae has also produced severe crown symptoms in otherwise healthy trees. Our data analyses indicate that P. bilineatus is a secondary invader of physiologically weakened trees, but it is of primary importance as the only organism yet to be both consistently associated with decline and experimentally proven to be capable of producing decline symptoms in healthy trees. Although abiotic factors continue to be suspect in the initiation of 'ohi'a forest decline, the role of this organism is now clear as an accelerating factor. Furthermore, since this species appears to be symptomatic rather than incitative in the demise of the 'ohi'a forest overstory, it can be regarded as a beneficial organism. P. bilineatus hastens the destruction of the declining forest canopy, opens the forest floor to light, and promotes the rapid resurgence of the shade-intolerant native understory, thus helping to preserve the integrity of the rain forest ecosystem.